Assessing Food Trade Sustainability in ASEAN-4 Countries

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Assessing Food Trade Sustainability in ASEAN-4 Countries

Izzah Syahirah Binti Jani

A thesis submitted

In fulfilment of the requirements for the degree of Master of Science (Economics)

Faculty of Economics and Business
UNIVERSITI MALAYSIA SARAWAK
2018

DECLARATION

This work described in this thesis, entitled **"Assessing Food Trade Sustainability in ASEAN-4 Countries"** is to the best of the author's knowledge that of the author except where due reference is made. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

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Thanks to ALLAH Almighty for the wisdom he bestowed upon me, the strength, peace of mind and good health in order to finish this research.

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ABSTRACT

The purpose of this research is to examine the sustainability and long-run relationship between food exports and imports for four ASEAN countries (Indonesia, Malaysia, Philippines and Thailand) on the aggregate and disaggregate level. This study utilises the Intertemporal Budget Constraint (IBC) model to explain the behaviour of the food trade sustainability in these countries. The analysis was carried out using various unit root and cointegration procedures for the annual observations over the period from 1996 to 2014. According to the analysis results, several conclusions could be made. First of all, the results clearly show that a long-run relationship exists between food exports and imports in ASEAN-4 countries as a group at the aggregate level. At a disaggregated level, the results reveal that a long-run relationship exists between food exports and imports only for food commodities 022, 024, 034, 042, 044, 047, 075, 081 and 091. It is evident that the macroeconomic policies in these countries have been implemented effectively. Secondly, the study found evidence that food exports and imports are cointegrated with a strong form of sustainability in aggregate level which is the coefficient of β is more than one (1.0049). For every dollar ($) increase in the import of food, exports of food increase by $1.0049. This means that the food export is growing at a faster rate than food import in ASEAN-4 countries. At disaggregated level, the results show strong sustainability for food commodities 034, 047, 075 and 091 but weak sustainability for food commodities 022, 024, 042, 044 and 081. The results suggest that first, reducing the dependence on food import may improve food trade balance in ASEAN-4 countries. Second, policymakers should review the price regulation on food commodities so that it can buffer the future risk of market speculation. Third, some measures such as R&D intensification, technology transfer and extension services have to be done consistently to improve the quantity and

quality of food production. Finally, urban agriculture is one of the better initiatives, hence, incentives should be prepared by the government of ASEAN-4 countries to improve the availability and quality of adequate food among the urban population.

Keywords: sustainability, food security, imports, exports, ASEAN-4.

Menilai Kemampanan Perdagangan Makanan di Negara-negara ASEAN-4

ABSTRAK

Tujuan penyelidikan ini adalah untuk mengkaji hubungan kelestarian dan jangka panjang antara eksport dan import makanan untuk empat negara ASEAN (Indonesia, Malaysia, Filipina dan Thailand) pada tahap agregat dan pecahan. Kajian ini menggunakan model kekangan bajet antara tempoh (IBC) untuk menjelaskan tingkah laku kelestarian perdagangan makanan di negara-negara ini. Analisis telah dilakukan dengan menggunakan pelbagai prosedur ujian unit akar dan kointegrasi untuk pemerhatian tahunan sepanjang tempoh dari tahun 1996 hingga 2014. Berdasarkan hasil analisis, beberapa kesimpulan dapat dibuat. Pertama sekali, keputusan jelas menunjukkan wujudnya hubungan jangka panjang antara eksport dan import makanan di negara-negara ASEAN-4 sebagai satu kumpulan di peringkat agregat. Pada peringkat pecahan, keputusan menunjukkan wujudnya hubungan jangka panjang antara eksport makanan dan import hanya untuk komoditi makanan 022, 024, 034, 042, 044, 047, 075, 081 dan 091. Ini membuktikan bahawa dasar makroekonomi di negara-negara ini telah dilaksanakan dengan berkesan. Kedua, kajian ini telah membuktikan bahawa eksport dan import makanan disatukan dengan bentuk kelestarian yang kukuh pada tahap agregat yang merupakan pekali β lebih dari satu (1.0049). Bagi setiap dolar ($) peningkatan pada import makanan, eksport makanan juga meningkat sebanyak $1.0049. Ini bermakna eksport makanan berkembang pada kadar yang lebih cepat daripada import makanan di negara-negara ASEAN-4. Di peringkat pecahan, hasil menunjukkan kelestarian yang kuat untuk komoditi makanan 034, 047, 075 dan 091 tetapi kelestarian yang lemah untuk komoditi makanan 022, 024, 042, 044 dan 081. Bagi kelestarian komoditi makanan yang

lemah, keputusan mencadangkan bahawa kebergantungan terhadap import makanan patut dikurangkan bagi meningkatkan keseimbangan perdagangan makanan di negara-negara ASEAN-4.

***Kata kunci**: kemampanan, keselamatan makanan, import, eksport, ASEAN-4.*

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LIST OF ABBREVIATIONS

ASEAN	Association of Southeast Asian Nations
DOLS	Dynamic Ordinary Least Squares
FAO	Food and Agriculture Organization
FMOLS	Fully Modified Ordinary Least Squares
IBC	Intertemporal Budget Constraint
OLS	Ordinary Least Squares
SITC	Standard International Trade Classification
UN	United Nations
UNCOMTRADE	United Nations Commodity Trade
UNDESA	United Nations Department of Economic and Social Affairs

CHAPTER 1

INTRODUCTION

1.1 Introduction

The world has seen a large increase of food prices in 2007-2008. The dramatic increase in food prices is due to the competing demands of consumers and industry. These demands were toppled by shortages of supply in 2007 to 2008 especially major food crops such as rice, wheat, maize and soybeans. The shortages dragged the world into the global food crisis. This crisis caused economic and political instability in both poor and developed countries. The skyrocketing cost of food is the signal that demand is outstripping supply. The poorest group which is the most vulnerable group for food security spend around 50-70% of their incomes on food (Worldbank, 2012). The rise in food prices reduces purchasing power, calorie intake and nutrition of world's poorer families. Hence, volatile food prices will exacerbate food security because people could not access food when needed.

Following the 2007 to 2008 global food crisis, food prices started to rise again in 2010 to 2011. The food price situation in 2010 to 2011 had similarities with 2007 to 2008. Firstly, the low stocks of global grain. Secondly, the impact of high oil prices on food commodities prices. Thirdly, depreciation of US Dollar against most currencies caused the prices of dollar-dominated international commodities to rise. Furthermore, financial investment in agricultural commodities remained high. However, the situation of recent global food price also differed with the situation in 2007 to 2008 in some instances. The increase of prices in food is more widespread across food commodities in recent

international price. Moreover, climate change induced a decrease in food production. Besides that, policy responses in 2011 raised the amplitude of the increase in grain price but not nearly as much as in 2008 when policy really worsen the food shortages (Development Committee, 2011).

1.2 The Increasing in Food Commodity Prices

As one of the most basic needs, food is supposed to be available all the time to everybody. A sudden increase in food prices in 2007 to 2008 and 2010 to 2011 led to an increase in food commodity prices.

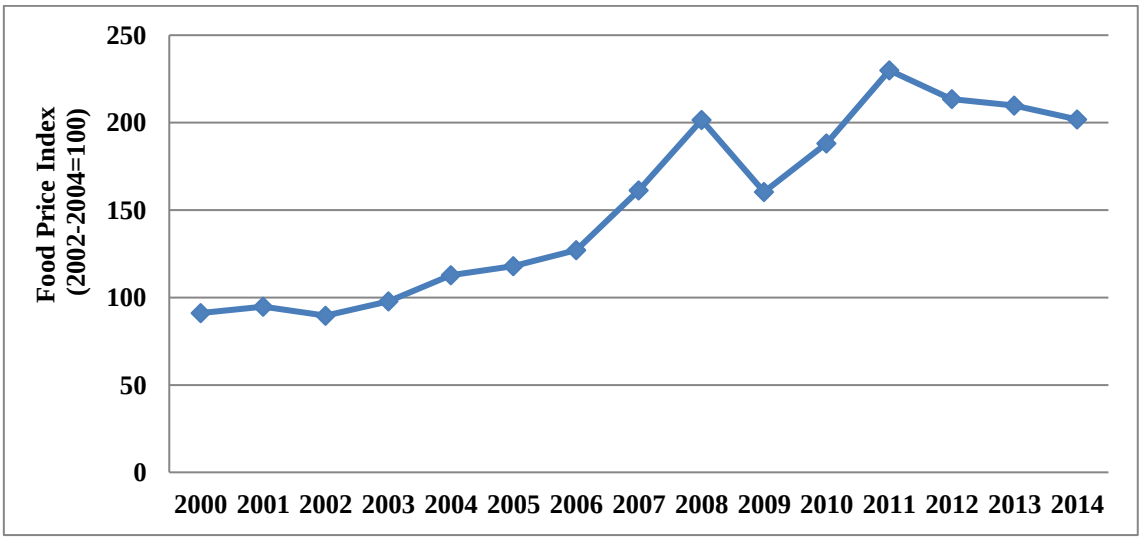

Figure 1: World Food Price Index, FAO (2014).

Figure 1 shows the world food price index from 2000 to 2014. As seen in the year 2002, food prices only started to increase slowly before suddenly increasing rapidly from the year 2004. The food prices increased rapidly and sharply in late 2007 through early 2008 in the aftermath of the global food crisis in 2008 and rose again in 2010. Between

early June 2010 and February 2011, the price of food commodities increased sharply which surpassed even the 2008 peak. The FAO food price index in 2008 averaged at 201 compared to 2007 which was at 161.4 while in 2011 the food price index was at 230 compared to 188 in 2010.

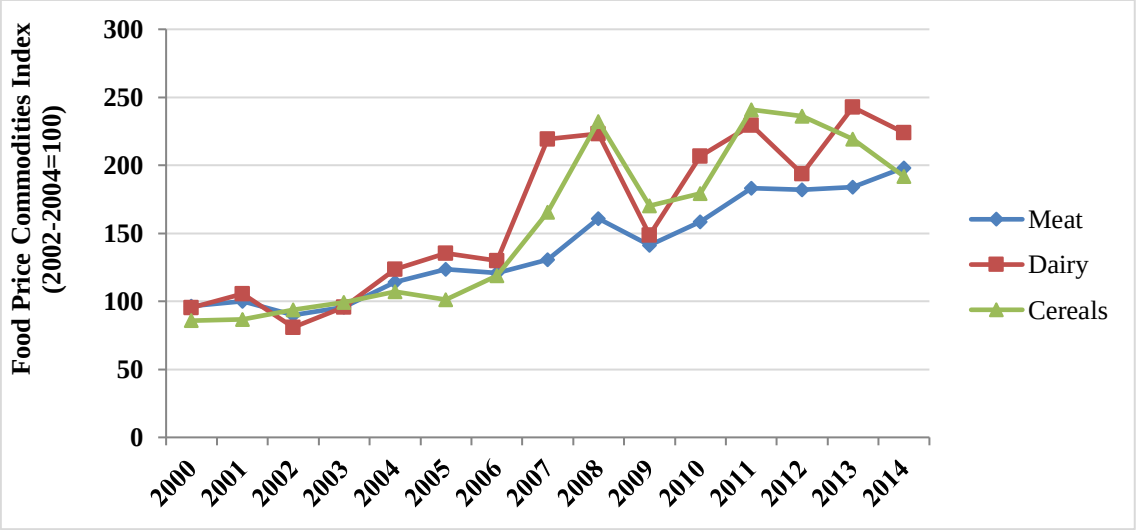

Figure 2: World Food Price Commodities Index, FAO (2014).

During the global food crisis, the world saw a large increase in prices of meat, cereals and dairy products. From Figure 2, meat price index shows up to 160.7 in 2008 compared to 2007 which was at 130.8. After a decreasing trend in 2009, meat prices eventually began to increase again in 2010 onwards. Furthermore, cereals and dairy products also showed soaring prices during the food crisis. Cereals price index was at 232.1 and dairy price index at 223.1 respectively in 2008. The prices of cereals and dairy spiked again in 2011, surpassing even the 2008 levels which were at 240.9 and 229.5. The rise of meat prices was caused by the increasing demand for meat. With higher incomes and increasing urbanisation especially in developing countries, people tend to eat less grain and more meat and dairy products.

1.3 ASEAN-4 Food Trade Balance

Figures 3, 4, 5 and 6 show the food export, food import and trade balance for ASEAN-4 (Indonesia, Malaysia, Philippines and Thailand) countries from the year 1996 to 2014. Food trade balance is the value of exported foods minus the value of imported foods. A positive food trade balance signifies a food trade surplus while a negative value signifies a food trade deficit. In Figure 3, Indonesia continuously showed a food trade surplus by exporting more than importing foods from the year 1996 to 2011. In 2011, Indonesia recorded the highest net food export at US$203 billion but then the food trade reached deficits in 2012, 2013, and 2014.

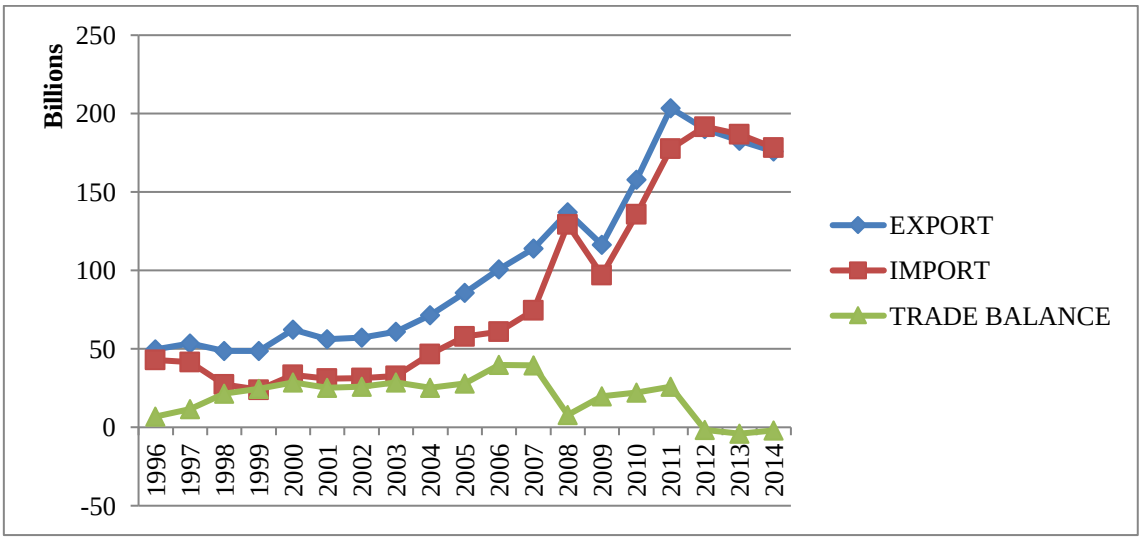

Figure 3: Indonesia Food Trade Balance, UNCOMTRADE (2015).

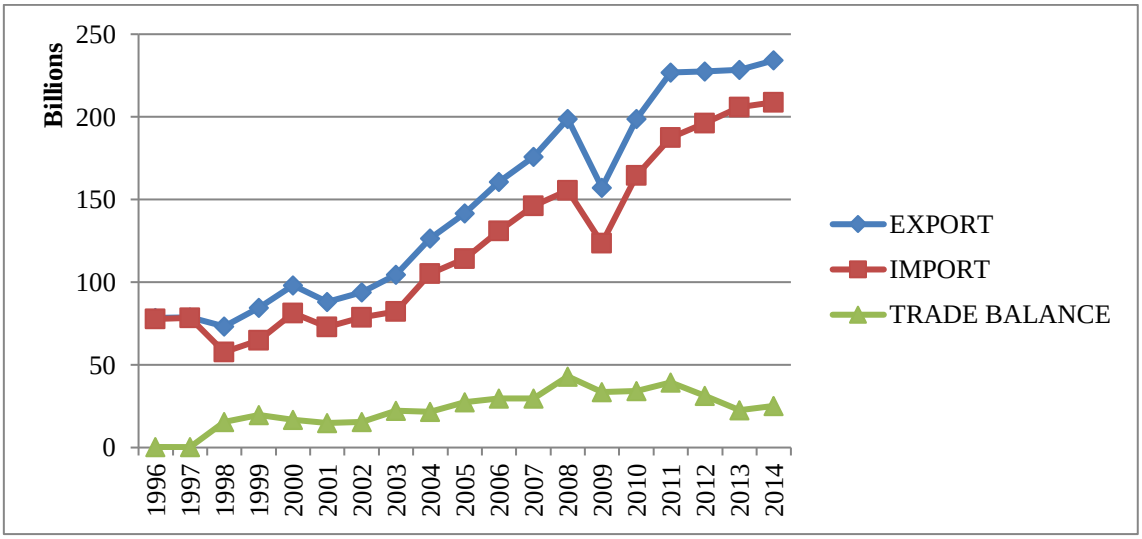

Figure 4: Malaysia Food Trade Balance, UNCOMTRADE (2015).

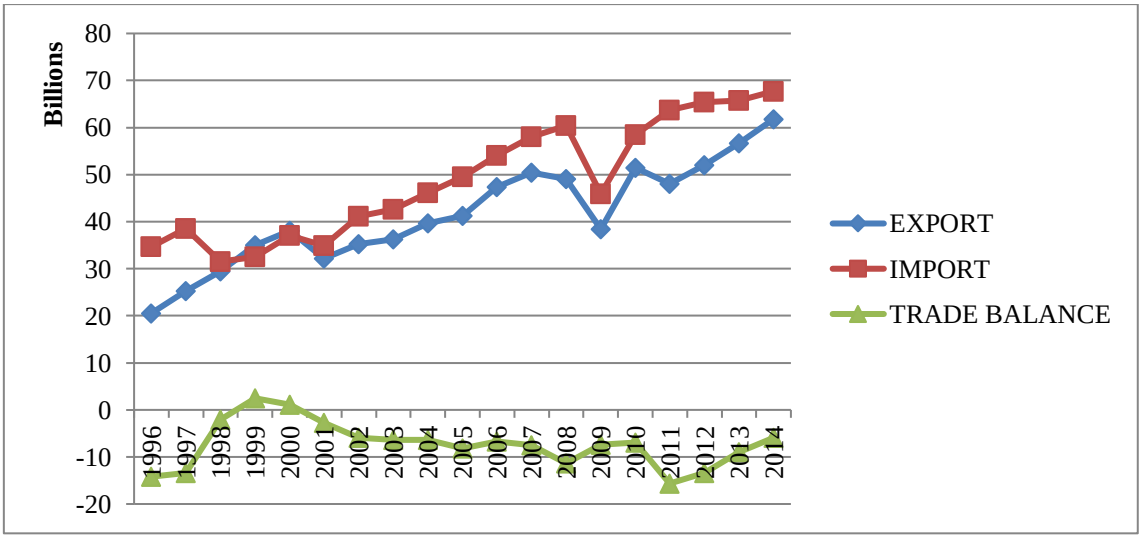

Figure 5: Philippines Food Trade Balance, UNCOMTRADE (2015).

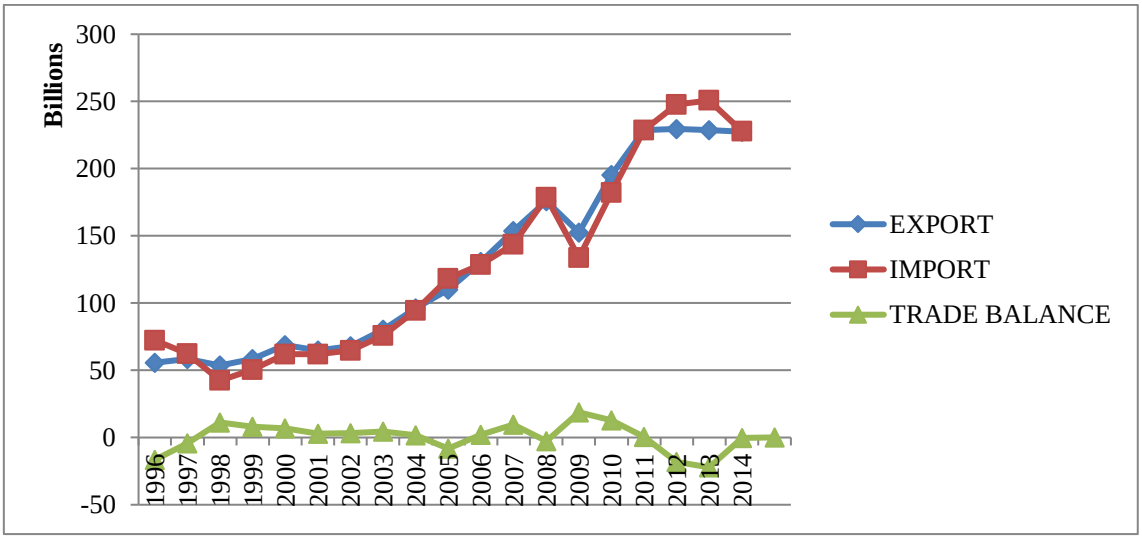

Figure 6: Thailand Food Trade Balance, UNCOMTRADE (2015).

In Figure 4, Malaysia managed to maintain a positive food trade balance from 1996 to 2014. The food trade surplus in 2008 was the largest which stood at US$43 billion as food exports grew more than food imports. Meanwhile, Philippines had a negative food trade balance since 1996 where the food imports increased more than food exports except in 1999 and 2000. The Philippines recorded its biggest food trade deficit in 2011 at US$15.7 billion. Also, “the food basket of Asia” which is Thailand also showed a food trade deficit in recent years.

Moreover, ASEAN-4 food trade surplus as a group decreased since 2010 as seen in Figure 7. In 2008, food trade balance dropped to $36.78 billion from $71.78 billion surplus in 2007. The food trade surplus increased to $64.57 billion in 2009 and then continued to decline until 2012. The food trade balance becomes deficit which was $1.80 billion in 2012 and $12.77 billion in 2013. After the food trade deficit in 2012 and 2013, the food trade balance showed a positive growth but not as much from the previous year. These indicated that food trade balance in ASEAN-4 countries declined in recent years and the food trade

deficit will lead to serious food trade imbalances and subsequently cause another food crisis and exacerbate ASEAN-4 food security.

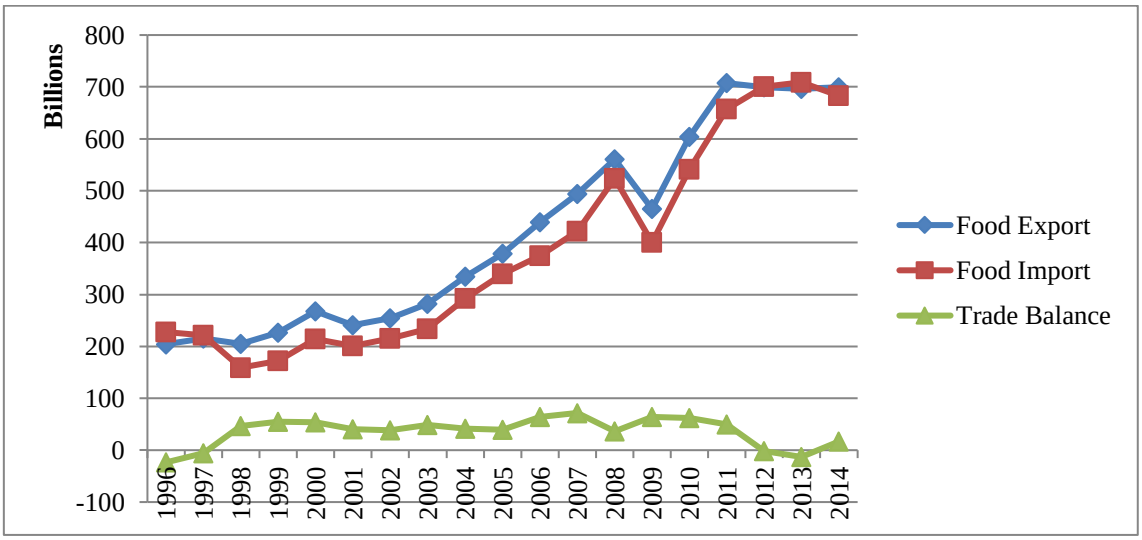

Figure 7: ASEAN-4 Food Trade Balance, UNCOMTRADE (2015).

1.4 Problem Statement

Food is our body's fuel. Without food, people would lose energy and suffer from chronic hunger. Based on the UNDESA (2009), it is predicted that population will grow from 6.9 billion in 2010 to 8.3 billion in 2030 and to 9.1 billion in 2050 while in ASEAN-4 countries the population is expected to grow to 553 million people in 2050 (UN, 2012). Along with the growth of world's population, the global food demands have increased steadily. The demand for food is increasing faster than the ability of the world to produce food and this puts pressure on natural limited resources. This has led a significant decline in global grain stocks. As a result, in 2007 to 2008, most of staple food prices surged to an unpredicted level. The price of rice tripled since September 2007 and soared by 160% between January and April 2008. The price of wheat almost doubled followed by maize

which increased by 67% since July 2007 (Panitchpakdi, 2008). This situation has been referred to as a 'global food crisis' where the rates of hunger and malnutrition people increased sharply because of increases in food prices and extreme shortage of food at local, national and global levels. After three years from the 2007 to 2008 global food prices spikes, the price of foods spiked again in 2010 to 2011 and surpassed its 2008 peak.

Food trade is important for providing food and ensuring global food security. The trade of food is constantly increasing as countries rely on each other to secure adequate and varied food supplies. Without food trades, the countries may not have enough food to feed their growing population. Food import may help in reducing food prices but it will be critical in times of natural disasters or other possible disruptions to domestic productions. Additionally, a decrease in food production will cause ASEAN-4 countries to be more reliant on import for its food. Indonesia has become a net importer of rice country and has to import rice from other rice-producing countries to meet the needs of its massive population. Malaysia has grown to be heavily reliant on rice to satisfy most of its food requirements for feeding its population (Arshad and Abdel Hameed, 2010). The largest net importer of rice countries in the world, Philippines, is also worried whether the country could secure its food supplies from the international market (Chandra and Lontoh, 2010) when the price of rice increases. Thailand, which is known as the "food basket of Asia" also showed a food trade deficit in recent years. The increasing import of food will cause a bad impact to these countries because rising imports will lead to the drawdown of the foreign exchange earnings. In other words, food supply in these countries are decreasing and they rely on international trade to meet population needs.